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Atty Dkt. No.: 10992204-1  
USSN: 09/499,962AMENDMENTS TO THE CLAIMS

Please amend the claims, as shown below. A complete listing of the claims, showing their current status, is provided below.

1. (currently amended) An apparatus for mounting ion optic components of a time of flight mass spectrometer, comprising:

- (a) a base having a front face, a rear face and at least one side face, and
- (b) at least two supports wherin each of said supports has at least one face and wherin each of said supports is affixed to said base by alignment of a portion of at least one face of said base and a portion of at least one face of said support,

wherein said supports provide for optical alignment within acceptable tolerances, without further adjustment, of components of an ion optics system when mounted thereon, and wherin at least one of said supports has attached thereto a component of an ion optics system for a time of flight mass spectrometer .

2. (original) An apparatus according to Claim 1 wherein said alignment is at 90 degrees.

3. (original) An apparatus according to Claim 1 wherein at least one of said supports has at least two faces and at least a portion of each of said two faces is aligned with two faces of said base.

4. (original) An apparatus according to Claim 1 comprising a plurality of supports with attached components comprising an ion source and a detector and optionally one or more of a pulser, an ion mirror and an Einzel lens and said alignment results in a relationship between said components that is within acceptable tolerances.

5. (original) A mass spectroscopy apparatus comprising an apparatus according to Claim 1.

6. (original) An apparatus according to Claim 1 wherein said supports are affixed to said front face of said base and said front face or said rear face has at least one

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groove therein.

7. (original) An apparatus according to Claim 6 wherein an electrical lead is sequestered in said groove and said apparatus further comprises a shielding plate covering said groove.

8. (original) An apparatus according to Claim 1 wherein said base further comprises at least one opening therethrough.

9. (original) An apparatus according to Claim 8 wherein at least one of said supports is affixed to said base by the alignment of a portion of at least one face of said support and a portion of a face of said opening.

10. (currently amended) A time of flight mass spectroscopy apparatus comprising components of an ion optics system ~~for said a mass spectrometer~~ affixed to a mounting base, each of said components being affixed to a support, each of said supports having at least one support mating face,

wherein said mounting base comprises a plurality of base mating faces respectively corresponding to a respective support mating face,

wherein said support mating faces and said base mating faces are configured and dimensioned such that when said support mating faces are brought together in registration with said respective base mating faces, said components are optically aligned within acceptable tolerances without further adjustment.

11. (previously presented) A mass spectroscopy apparatus according to Claim 10 wherein a support mating face comprises a geometrical shape and a corresponding base mating face comprises a complementary geometrical shape to said first guide and said corresponding mating faces are brought together in registration by apposing said geometrical shapes.

12. (previously presented) A mass spectroscopy apparatus according to Claim 11 wherein said complementary geometrical shapes comprise a protrusion from one of the mating faces and a recess in the other of the mating faces.

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13. (original) A mass spectroscopy apparatus according to Claim 10 wherein a mating face comprises a planar surface adjacent an outside edge and a corresponding mating face comprises a planar surface adjacent an inside edge and said corresponding mating faces are brought together in registration by apposing said respective planar surfaces and edges.

14. (previously presented) A mass spectroscopy apparatus according to Claim 10 wherein said mounting base is a flat member having first and second surfaces and a finite thickness, and wherein said support mating face comprises a planar surface adjacent an inside edge, and said corresponding base mating face comprises a planar surface that forms an outside edge where it intersects said support mating face, and said mating faces are brought together in registration by apposing said respective planar surfaces and edges.

15. (original) A mass spectroscopy apparatus according to Claim 14 wherein said outside edge formed by intersection of said base mating surface and said support mating surface defines a straight line.

16. (original) A mass spectroscopy apparatus according to Claim 14 wherein said base mating surface is orthogonal to said support mating surface.

17. (original) A mass spectroscopy apparatus according to Claim 10 comprising a time-of-flight mass spectrometer, said components comprising at least one of an ion source, a pulser, an ion mirror or a detector.

18. (currently amended) A mass spectroscopy apparatus comprising components of an ion optics system affixed to a mounting base, each of said components being affixed to a support, each of said supports having at least one support mating face,

wherin said mounting base comprises a plurality of base mating faces respectively corresponding to a respective support mating face,

wherin said support mating faces and said base mating faces are configured and dimensioned such that when said support mating faces are brought together in registration with said respective base mating faces, said components are optically

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aligned within acceptable tolerances without further adjustment; and according to Claim 17-wherein said components further comprise an Einzel lens.

19. (original) A mass spectroscopy apparatus according to Claim 10 wherein said supports are affixed to a front face of said mounting base and said front face or a rear face has at least one groove therein, wherein an electrical lead is sequestered in said groove and said mounting base further comprises a shielding plate covering said groove.

20. (currently amended) A method for constructing a time of flight mass spectrometer ~~an apparatus comprising a plurality of components of a time of flight mass spectrometer~~ ~~an ion optical system for a mass spectrometer~~, said method comprising:

(a) bringing together (i) a base having a front face, a rear face and at least one side face, and (ii) a plurality of supports wherein each of said supports has at least one face and wherein each of said components is attached or is attachable to one of said supports,

(b) aligning at least a portion of a face of each of said supports with a corresponding portion of at least one face of said base and

(c) securing said portions to one another,

wherein said components of said ion optical system for a mass spectrometer are attached to said supports prior to or subsequent to said step (c) and wherein said portions of said faces are configured and dimensioned such that when said portions are secured, said components are optically aligned within acceptable tolerances without further adjustment.

21. (original) A method according to Claim 20 wherein said components comprise an ion source and a detector and optionally one or more of a pulser, an ion mirror, and an Einzel lens.

22. (original) A method according to Claim 20 wherein said components comprise an ion source and a detector and optionally one or more of a pulser and an ion mirror wherein said components are aligned in a parallel relationship.

23. (original) A method according to Claim 20 wherein said base further comprises at least one opening therethrough.

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24. (original) An apparatus according to Claim 23 wherein at least one of said supports is affixed to said base by the alignment of a portion of at least one face of said support and a portion of a face of said opening.

25. (currently amended) A method for constructing an apparatus comprising a plurality of components of an ion optical system for a mass spectrometer, said method comprising:

(a) bringing together (i) a base having a front face, a rear face and at least one side face, and (ii) a plurality of supports wherein each of said supports has at least one face and wherein each of said components is attached or is attachable to one of said supports,

(b) aligning at least a portion of a face of each of said supports with a corresponding portion of at least one face of said base and

(c) securing said portions to one another,  
wherein said components of said ion optical system for a mass spectrometer are attached to said supports prior to or subsequent to said step (c) and wherein said portions of said faces are configured and dimensioned such that when said portions are secured, said components are optically aligned within acceptable tolerances without further adjustment, and according to Claim 20

wherein said supports are affixed to said front face of said base and said front face or said rear face has at least one groove therein, wherein an electrical lead is sequestered in said groove and said mounting base further comprises a shielding plate covering said groove.

26. (currently amended) A method of constructing a time of flight mass spectroscopy apparatus comprising components of an ion optics system for a mass spectrometer, said method comprising:

(a) affixing to a mounting base each component of an ion optics system for a time of flight mass spectrometer, each of which are affixed to a support either prior to or after said support is affixed to said mounting base, each of said supports having at least one support mating face, wherein said mounting base comprises a plurality of base mating faces respectively corresponding to a respective support mating face, wherein said support mating faces and said base mating faces are configured and dimensioned such that when said support mating faces are brought together in registration with said respective base mating faces, said

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components are optically aligned within acceptable tolerances without further adjustment,

(b) securing said mounting base to a frame of said mass spectroscopy apparatus.

27. (original) A method according to Claim 26 wherein said components comprise an ion source and a detector and optionally one or more of a pulser, an ion mirror, and an Einzel lens.

28. (original) A method according to Claim 26 wherein said components comprise an ion source and a detector and optionally one or more of a pulser and an ion mirror wherein said components are aligned in a parallel relationship.

29. (original) A method according to Claim 26 wherein said supports are affixed to a front face of said mounting base and said front face or a rear face has at least one groove therein, wherein an electrical lead is sequestered in said groove and said mounting base further comprises a shielding plate covering said groove.

30. (currently amended) A time of flight mass spectrometer scientific apparatus for use in high vacuum environments, said apparatus comprising at least one electrical connection therein resulting from a base plate having a groove in at least one face thereof wherein an electrical lead is sequestered in said groove and wherein a shielding plate covers said groove.